

What Is Claimed Is:

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1. A conjugate of a non-immunogenic toxin or therapeutic radionuclide and a cell-specific cytokine.

2. A conjugate as claimed in claim 1, wherein said toxin is an RNase.

3. A conjugate as claimed in claim 1, wherein said cytokine is IL-15.

4. A conjugate as claimed in claim 3, wherein said toxin is onconase.

5. A conjugate as claimed in claim 4, which additionally comprises a diagnostic radionuclide.

6. A composition comprising a conjugate according to claim 1, and a pharmaceutically acceptable carrier.

7. A composition as claimed in claim 6, additionally comprising a diagnostic radionuclide conjugated to said cytokine.

8. A fusion protein comprising a bispecific antibody that has a first specificity for a cell marker specific to a malignant cell and a second specificity for a region of IL-15 α .

9. A fusion protein as claimed in claim 8, wherein said bispecific antibody is a scF_v.

10. A fusion protein as claimed in claim 9, wherein said scF_v is a fusion of two individual scF_v molecules.

11. A fusion protein as claimed in claim 10, wherein said cell marker is a B-cell restricted antigen.

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~~12~~. A fusion protein as claimed in claim ¹⁶~~11~~, wherein said cell marker is CD20.

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~~13~~. A fusion protein as claimed in claim ⁷~~8~~, wherein said region of IL-15 α is an extracellular domain of IL-15 α .

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~~14~~. A composition comprising a fusion protein according to claim ⁷~~8~~ and a pharmaceutically acceptable carrier.

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15. A kit comprising a conjugate of onconase and IL-15, and a fusion protein comprising a bispecific antibody that has a first specificity for a cell marker specific to a malignant cell and a second specificity for a region of IL-15 α .

16. A method of treating a malignancy, comprising the steps of:
first administering to a subject having a malignancy a fusion protein comprising a bispecific antibody that has a first specificity for a cell marker specific to a malignant cell and a second specificity for a region of IL-15 α , and then administering to said subject therapeutically effective amount of a conjugate of onconase and IL-15.

17. A method as claimed in claim 16, additionally comprising a step of administering at least one of chemotherapy and radiation therapy in an amount sufficient to prevent tumor cells from activating DNA-repair mechanisms.

18. A method as claimed in claim 16, wherein said cell marker is a B-cell restricted antigen and said subject has a B-cell malignancy.

19. A method as claimed in claim 18, wherein said cell marker is CD20 and said subject has B-cell lymphocytic leukemia, non-Hodgkin's lymphoma, hairy cell leukemia or acute myelogenous leukemia.

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